

## FAX Sheet

**DAMES & MOORE**

A DAMES &amp; MOORE GROUP COMPANY

*m/027/006*

127 South 500 East  
Suite 300  
Salt Lake City, UT 84102-1959  
(801) 521-9255 Telephone  
(801) 521-0380 FAX

<b>To:</b> Lynn Kunzler	<b>Phone No.:</b> 538-5310	<b>FAX No.:</b> 359-3940
<b>Company:</b> Utah Division of Oil Gas and Mining		<b>Task/Job No.:</b>

<b>From:</b> Karen Stilwell
<b>Date:</b> April 17, 1997
<b>Subject:</b> Revised Analytical Data for Continental Lime
You should receive <u>3</u> pages, including cover sheet. Please call if you do not receive the correct number of pages.

Lynn,

Enclosed is a revised summary table and revised results (percent organic matter) for soil samples taken at the Cricket Mountain Plant for Continental Lime. Please feel free to call with questions or comments.

-Karen Stilwell

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Continental Lime Inc.  
Soil Sampling  
April 7, 1997

### 3.0 ANALYTICAL RESULTS

Analytical results provided by American West Analytical Laboratory are outlined in Table 1.  
Laboratory data sheets and the chain-of-custody are included in Appendix B.

Table 1 - Updated Analytical Data Summary (April 17, 1997)									
Sample ID	ph	EC <sup>1</sup> (mmhos/ cm)	SAR <sup>2</sup> (mg/Kg)	Percent Organic Matter (TVS)	CEC <sup>3</sup> (meq/ 100 g sample)	Total Nitrogen (mg/Kg) (TKN)	Nitrate Nitrite (mg/ Kg)	Phosphate (mg/Kg)	Potassium (mg/Kg)
Dump 1	8.2	0.086	0.3	2.5	400	900	0.17	980	2,300
Dump 2	8.2	0.076	0.2	2.2	380	640	0.16	550	5,400
Dump 3	8.2	0.083	0.3	1.8	410	570	0.33	690	7,400
Dump 4	8.1	0.091	0.4	1.8	390	440	0.18	760	6,500
BB Dolomite	8.3	0.072	0.3	2.4	390	570	0.21	530	7,000
Upper PM	8.7	0.18	0.4	1.9	320	360	0.30	440	4,100
Lower PM	8.6	0.10	0.3	2.0	290	410	0.51	410	4,200
PM Fines Topsoil	8.2	0.130	0.3	2.1	320	600	0.20	800	5,900
PM Crusher Topsoil	8.0	0.160	0.3	1.5	350	250	0.43	500	5,200
Fines	8.8	0.120	0.06	0.14	9.6	150	2.0	39	100
Big Sage	8.2	0.083	0.3	2.1	400	550	0.21	660	6,500

1 - Conductivity

2 - Sodium Absorption Ratio

3 - Cation Exchange Capacity



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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-01 R  
Field Sample ID.: Continental Lime/  
PM Crusher Topsoil

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	5,200.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	350.
*†Conductivity	120.1	0.01	0.160
*Nitrate (as N)	353.2	0.01	0.35
*Nitrate/Nitrite (as N)	353.2	0.01	0.43
*pH	9045	0.1	8.0
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	500.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	250.
TVS	160.4	1.0	15,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-03 R  
Field Sample ID.: Continental Lime/  
Dump 3

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	<u>Method Used:</u>	<u>Reporting Limit: mg/Kg</u>	<u>Amount Detected: mg/Kg</u>
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	7,400.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	410.
*†Conductivity	120.1	0.01	0.083
*Nitrate (as N)	353.2	0.01	0.18
*Nitrate/Nitrite (as N)	353.2	0.01	0.33
*pH	9045	0.1	8.2
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	690.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	570.
TVS	160.4	1.0	18,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

+ Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-04 R  
Field Sample ID.: Continental Lime/  
Dump 2

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	<u>Method Used:</u>	<u>Reporting Limit:</u> mg/Kg	<u>Amount Detected:</u> mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	5,400.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	380.
*†Conductivity	120.1	0.01	0.076
*Nitrate (as N)	353.2	0.01	0.10
*Nitrate/Nitrite (as N)	353.2	0.01	0.16
*pH	9045	0.1	8.2
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	550.
SAR(Sodium Absorption Ratio)NA		NA	0.2
TKN (as N)	351.2	0.1	640.
TVS	160.4	1.0	22,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-05 R  
Field Sample ID.: Continental Lime/  
BB Dolomite

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	<u>Method Used:</u>	<u>Reporting Limit:</u> mg/Kg	<u>Amount Detected:</u> mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	7,000.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	390.
*†Conductivity	120.1	0.01	0.072
*Nitrate (as N)	353.2	0.01	0.18
*Nitrate/Nitrite (as N)	353.2	0.01	0.21
*pH	9045	0.1	8.3
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	530.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	570.
TVS	160.4	1.0	24,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-06 R  
Field Sample ID.: Continental Lime/  
Big Sage

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	<u>Method Used:</u>	<u>Reporting Limit: mg/Kg</u>	<u>Amount Detected: mg/Kg</u>
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	6,500.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	400.
*†Conductivity	120.1	0.01	0.083
*Nitrate (as N)	353.2	0.01	0.09
*Nitrate/Nitrite (as N)	353.2	0.01	0.21
*pH	9045	0.1	8.2
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	660.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	550.
TVS	160.4	1.0	21,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-07 R  
Field Sample ID.: Continental Lime/  
Upper PM

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	4,100.
OTHER CHEMISTRIES			

ΔCation Exchange Capacity	9081	0.1	320.
*†Conductivity	120.1	0.01	0.18
*Nitrate (as N)	353.2	0.01	0.21
*Nitrate/Nitrite (as N)	353.2	0.01	0.30
*pH	9045	0.1	8.7
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	440.
SAR(Sodium Absorption Ratio)NA		NA	0.4
TKN (as N)	351.2	0.1	360.
TVS	160.4	1.0	19,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-08 R  
Field Sample ID.: Continental Lime/  
Lower PM

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	<u>Method Used:</u>	<u>Reporting Limit: mg/Kg</u>	<u>Amount Detected: mg/Kg</u>
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	4,200.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	290.
*†Conductivity	120.1	0.01	0.10
*Nitrate (as N)	353.2	0.01	0.31
*Nitrate/Nitrite (as N)	353.2	0.01	0.51
*pH	9045	0.1	8.6
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	410.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	410.
TVS	160.4	1.0	20,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-09 R  
Field Sample ID.: Continental Lime/  
PM Fines Topsoil

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	5,900.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	320.
*†Conductivity	120.1	0.1	0.130
*Nitrate (as N)	353.2	0.01	0.09
*Nitrate/Nitrite (as N)	353.2	0.01	0.20
*pH	9045	0.1	8.2
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	800.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	600.
TVS	160.4	1.0	21,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-10 R  
Field Sample ID.: Continental Lime/  
Dump 1

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	2,300.
OTHER CHEMISTRIES			
ΔCation Exchange Capacity	9081	0.1	400.
*†Conductivity	120.1	0.01	0.086
*Nitrate (as N)	353.2	0.01	0.11
*Nitrate/Nitrite (as N)	353.2	0.01	0.17
*pH	9045	0.1	8.2
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	980.
SAR(Sodium Absorption Ratio)NA		NA	0.3
TKN (as N)	351.2	0.1	900.
TVS	160.4	1.0	25,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-11 R  
Field Sample ID.: Continental Lime/  
Fines

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	100.
OTHER CHEMISTRIES			

ΔCation Exchange Capacity	9081	0.1	9.6
*†Conductivity	120.1	0.01	0.120
*Nitrate (as N)	353.2	0.01	1.9
*Nitrate/Nitrite (as N)	353.2	0.01	2.0
*pH	9045	0.1	8.8
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	39.
SAR(Sodium Absorption Ratio)NA		NA	0.06
TKN (as N)	351.2	0.1	150.
TVS	160.4	1.0	1,400.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

R Reissue of previously generated report. Information has been added, updated, or revised. Information herein supersedes that of previously issued reports.

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## INORGANIC ANALYSIS REPORT

Client: Dames & Moore  
Date Sampled: March 13, 1997  
Lab Sample ID.: 28763-02 R  
Field Sample ID.: Continental Lime/  
Dump 4

Contact: Craig Nelson  
Date Received: March 14, 1997  
Received By: Sherlyn Lewis  
Set Description: Eleven Soil Samples

### Analytical Results

	Method Used:	Reporting Limit: mg/Kg	Amount Detected: mg/Kg
TOTAL METALS			
Potassium (as K <sub>2</sub> O)	6010	6.0	6,500.

### OTHER CHEMISTRIES

ΔCation Exchange Capacity	9081	0.1	390.
*†Conductivity	120.1	0.01	0.091
*Nitrate (as N)	353.2	0.01	0.10
*Nitrate/Nitrite (as N)	353.2	0.01	0.18
*pH	9045	0.1	8.1
Phosphate (as P <sub>2</sub> O <sub>5</sub> )	365.4	0.2	760.
SAR(Sodium Absorption Ratio)NA		NA	0.4
TKN (as N)	351.2	0.1	440.
TVS	160.4	1.0	18,000.

\* Analysis is performed on a 1:1 DI water extract for soils.

† Conductivity reported in mmhos/cm @ 25 C.

Δ Cation Exchange Capacity reported in meq/100 g sample.

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